

## ABSTRACT

Methods and apparatus for treating or preventing endoleaks after an endovascular graft (e.g., a stent, tubular graft, stent-graft, coated stent, covered stent, intravascular flow modifier or other endovascular implant that affects, limits or prevents blood flow into a

5 vascular defect such as an aneurysm, arterio-venous fistula, arterio-venous malformation, vessel wall perforation, etc.) has been implanted in the vasculature of a human or veterinary patient. An expansile polymeric material, such as a swellable polymer (e.g., a hydrogel), a flexible or elastomeric polymer foam (e.g. silicone, polyurethane, etc.) or a carrier member (e.g, a coil, filament, wire, etc) that carries a quantity of such expansile polymer is delivered

10 into a perigraft space (i.e., space between the endovascular graft and the surrounding blood vessel wall) such that the polymeric material expands *in situ* to substantially fill the perigraft space or a portion thereof. The expansile polymeric material is delivered into he perigraft space through a catheter and/or cannula that is placed prior to, during or after the implantation of the endovascular graft. The invention includes an injector apparatus that

15 is useable to deliver the expansile polymeric material through the wall of a previously implanted graft. After delivery into the perigraft space, the expanded polymeric material expands so as to fill all or an intended portion of the perigraft space in a manner that substantially prevents additional blood from leaking or flowing into such perigraft space. One type of blood-absorbing, porous, expansile polymeric material useable in this invention

20 is a super-expansile hydrogel.